



PROFESSIONAL PAPER

Perceived barriers and motives to reading nutrition label among label 'non-users' in Croatia

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The purpose of this paper is to examine barriers and motives associated with reading nutrition information among label 'non-users' in Croatia and relationship with demographic and health factors of recruited sample. Label 'non-users' are subjects reported that had never or do not know or wish to tell about reading nutrition label during food purchasing (n=375) and were recruited from representative sample telephone interviewed Croatian, for assessing nutrition label attitudes. It is found that main reasons of not reading nutrition labels are: no interest (more often mentioned among male, younger, smokers and subjects without special diet), lack of responsibility for food purchasing (often pointed among subjects aged 55 and over, those with the lowest educational and social status, on a special diet) and no time (more frequently mentioned among participants who are already on special diet due weight problems). 43% of nutrition label 'non-users' do not know which motives would encourage them to start reading nutrition label. Nevertheless, young participants (up to 34 years) more than other mentioned health problems as probable motive to start with that practice. Identified barriers and motives of nutrition label 'non-users' gives clear message for establishing nutrition education programs that would encourage 'non-users' to change their behavior.

For the first time, attitudes of nutrition label 'non-users' were examined in Croatia and these findings together with previously reported results among label 'users', could contribute understanding food consumer behavior in Croatia, new EU Member State.

Key words: Nutrition label, Label non-users, Food consumer behavior, Croatia

Sažetak

Cilj ovog rada je bio istražiti prepreke i motive hrvatskih potrošača koji nemaju naviku čitanja nutritivnih informacija prilikom kupovine hrane, sa njihovim socio-demografskim karakteristikama. U ovom ispitivanju, potrošači koji nisu imali naviku čitanja su bili oni, koji su se tijekom telefonskog intervjua na reprezentativnom uzorku hrvatskih potrošača u širem kontekstu stavova o hrani, prehrani i zdravlju, deklarirali da nikad ne čitaju podatke sa nutritivne deklaracije hrane prilikom kupovine hrane i/ili to ne žele reći (n=375). Utvrđeno je kako su glavni razlozi nepostojanja navike čitanja nutritivne deklaracije: manjak interesa (češće spominjali muškarci, mladi, pušači i ispitanici bez posebnog režima prehrane), izostanak odgovornosti u vezi sa nabavkom hrane (češće naglašavali ispitanici stariji od 55 godina, oni sa najnižom razinom obrazovanja i prihoda, ispitanici na posebnom režimu prehrane) i manjak vremena (češće zabilježeno u ispitanika na posebnom režimu prehrane zbog problema sa tjelesnom masom). 43% ispitanika koji nemaju naviku čitanja nutritivnih informacija, ne znaju što bi ih ohrabrilo da počnu s tom praksom. Unatoč tome, mladi ispitanici (do 34 godine) su češće nego ostali spominjali kako bi ih vjerojatno zdravstveni problemi motivirali da počnu s tom navikom. U ovom radu identificirane prepreke i motive potrošača u kojih ne postoji navika čitanja nutritivnih informacija sa deklaracije proizvoda, pružaju dokaz o potrebi uvođenja nutricionističko-edukativnih programa, koji bi potrošače ohrabivali na promjenu prehranbenog ponašanja. Ovdje prikazani rezultati, po prvi puta istraživanih stavova potrošača koji nemaju praksu čitanja nutritivnih informacija prilikom kupovine hrane, zajedno sa prethodno objavljenim rezultatima o stavovima potrošača u kojih takva navika postoji, doprinose boljem razumijevanju prehranbenog ponašanja potrošača u Hrvatskoj, novoj članici Europske unije.

Ključne riječi: nutritivna deklaracija, potrošači koji ne koriste nutritivnu deklaraciju, prehranbeno ponašanje potrošača, Hrvatska

Introduction

Majority of papers in the area of nutrition label use, mostly came from USA and UK. Many of them have reported that label use among consumers is high, but considerably low when purchasing food (European Heart Network, 2003; Cowburn and Stockley, 2005). Consumer's beliefs about link between diet and health is found to be significantly connected with nutrition label use (Guthrie et. al., 1995; Neuhouwer et. al., 1999; Satia et. al., 2005). Recent data suggest that among Croatian people exist weak practices about reading nutrition label (Ranilović and Colić Barić, 2011). However, it is found that likelihood of reading nutrition information is more associated with females, highly educated subjects, physically active and subjects on a special diet. So far, not much is known in European context-

about differences between label users and non-users, which motives would stimulate non-users to start using nutrition label and how various socio-demographic variables affects nutrition label habits (European Heart Network, 2003; Cowburn and Stockley, 2005). Therefore, in order to extend European research's perspective in that area, particularly to examine consumer's interest in nutrition label in Croatia, the objectives of the paper were designed to fulfill previous research (Ranilović and Colić Barić, 2011) with 'label non-users' practices, as follows: (1) to identify barriers of not reading nutrition label and motives that would encourage nutrition label reading, (2) to identify socio-demographic and health variables associated with the most important barriers and motives in relation with reading nutrition label, and (3) to compare attitudes towards reading nutrition label of 'label non-users' and 'label users'.

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Table 1. Socio-demographic and health characteristics of 'label non-users' *

(a) Socio-demographic variables			(b) Health variables		
	<i>n</i>	%		<i>n</i>	%
<i>Total</i>	375		<i>Total</i>	375	
<i>Sex</i>			<i>Smoking</i>		
Male	197	53%	Non-smoker	221	59%
Female	178	47%	Smoker	138	37%
<i>Age (years)</i>			<i>Physicalactivity</i>		
15 - 24	58	15%	No	205	55%
25 - 34	64	17%	Yes	170	45%
35 - 44	61	16%	<i>BMI</i>		
45 - 54	64	17%	Underweight	4	1%
55 - 64	57	15%	Normalweight	182	49%
65+	71	19%	Overweight	137	37%
			Obese	43	11%
<i>Years of education (duration)</i>			<i>Specialdiet (varioushealthreasons)</i>		
< 8 years	21	6%	No	292	78%
8 years	65	17%	Yes	83	22%
12 years	237	63%			
13 +	50	13%			
<i>Householdsize (number)</i>			<i>Specialdiet (weightproblems)</i>		
1	60	16%	No	317	85%
2	87	23%	Yes	58	15%
3	73	19%	* ‘label non-users’ are those who answered that ‘never’ or ‘do not know/wish to tell’ about reading nutrition information in the last 12 months when purchasing packaged food; recruited from representative sample of Croatian adults (Ranilović and Colić Barić 2011).		
4	75	20%			
5+	80	21%			
<i>Monthlyincomeperhousehold</i>					
Up to €270	70	19%			
Between €271 and €541	90	24%			
Between €542 and €811	70	19%			
Between €812 and €1,081	65	17%			
Between €1,082 and €1,487	30	8%			
Over €1,488	32	9%			
<i>Employment status</i>					
Employed	160	43%			
Unemployed	47	13%			
Housewife	20	5%			
Stil undergoing education	29	8%			
Retired	114	30%			
<i>Marrital status</i>					
Single	100	27%			
Married	211	56%			
Widowed/separted	63	17%			

Participants and method

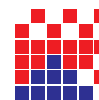
Participants

Participants for the present analysis (label non-users), were recruited from the representative sample of Croatian adults who were telephone interviewed in 2006 survey regard-

ing attitudes towards healthy eating and nutrition label habits (Ranilović *et al.*, 2009; Ranilović and Colić Barić, 2011).

Method

The selection and interview of representative sample of Croatian subjects aged 15 and over, were done through



Computer Assisted Telephone Interviewing (CATI) protocol (Ranilović and Colić Barić 2011). Participants were divided on 'label users' and 'label non-users', after answering following question: "When purchasing packaged food, how often in the last 12 months did you read the nutrition information relating to calories, amounts of protein, fat sugar and vitamins?". Those who answered 'never' and 'do not know or wish to tell' were marked as 'label non-users' and asked additional two questions (Lin et. al, 2004; Satia et. al., 2005). The first one was: "When purchasing food, why do you never read nutrition information relating calories, protein, fat, sugar...?" and the list of possible answers were offered, according to a literature findings (European Heart Network, 2003). The second one was open-ended question: "What would be the possible motive to start read nutrition information when purchasing food?" and subjects could give the answer they wanted. One the end, participants was asked questions related to socio-demographic and health status.

Statistical analysis

Descriptive analysis was used to identify percentage of subjects in relation with reasons of not reading nutrition label and motives to start read, while Pearson Chi-squared analysis was conducted to examine socio-demographic and health variables associated with top three reasons and motives to start with reading nutrition information on label (Ranilović and Colić Barić, 2011). All analyses were calculated using SPSS statistical software (version 13.0, 2004; SPSS Inc., Chicago, IL, USA).

Results and discussions

Results

Participants ('Label non-users' profile)

Participants marked as 'label non-users' (n=375) were predominantly male (53%), with 12 years of education (63%), who lives in household with the lowest monthly income 43% (lower than 540 Euros per month) (Table 1). They were non-smokers (59%), with no usual physical activity (55%) and special diet in everyday life.

Reasons of not reading nutrition label

Among 'label non-users', 44.0% of them pointed out 'no interest' in reading nutrition information, when buying food (Table 2). The reason 'never purchasing food' was on the second place (15.2%) while on the third place was 'no time' reason (9.1%). The other possible reasons for not reading nutrition information were as follows: no habits, too small letter size, no understanding, do not know/wish to tell, somebody else read, no confidence, no health problem and other. Male participants more frequently than female mentioned 'no interest' ($p < 0.05$), also the youngest (under 24 years) compared to older (45 and older) ($p < 0.01$), smoker versus non-smoker ($p < 0.01$) and those with no special diet due to various health reasons compared to subjects on special diet ($p < 0.01$) (Table 3). The reason 'lack of purchasing food habits' were more

pointed among participants aged 55 and over ($p < 0.05$), the lowest educated subjects ($p < 0.001$), living in household with the lowest monthly income ($p < 0.01$) and on special diet due to various health reasons ($p < 0.01$). More than others, respondents on a special diet due to weight problems mentioned 'no time' reason ($p < 0.05$).

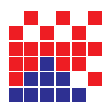
Table 2. *Reasons of not reading nutrition information when purchasing food among 'labelnon-users'**

	n	%
<i>Total</i>	375	100
No interest	165	44.0
Never purchasing food	57	15.2
No time	34	9.1
No habits	28	7.5
Lettersize (too small)	22	5.9
Do not understand	19	5.1
Do not know/do not want to tell	19	5.1
Somebody else read	11	2.9
No confidence	7	1.9
No health problems	7	1.9
Other	6	1.6

* 'label non-users' who answered that 'never' or 'do not know/wish to tell' why they did not read nutrition label, when purchasing packed food during the last 12 months

Motives that would encourage nutrition label reading practice

Health problems were mentioned by the 37.6% 'label non-users', as the main motive to start read nutrition label. 36% of them did not know and 7.0% had other reasons to start with that practice. Bigger letter size were notified among 6.7%, more time among 4.5% and other motives would be: interpretational aids (3.2%), somebody else to read (2.9%) and more confidence (2.2%) (Table 4). Health problems were pointed more among participants between 25-34 years than among participants aged 65 + ($p < 0.001$), those who live in 4 member household compared to singles ($p < 0.001$), still undergoing education more than among retired ($p < 0.01$). Singles also pointed health problems more than married or widowed/separated subjects, as well as those not on special diet due to various health reasons ($p < 0.05$) (Table 4). Opposite, widowed or separated subjects more frequently than singles mentioned bigger letter size to start with nutrition label reading practice ($p < 0.05$).

**Table 3.** Associations of socio-demographic and health characteristics with top three reasons of not reading nutrition information and motives to start reading, among 'label non-users'*(percentage, chi-square)

	(a) Reasons of not reading nutrition information				(b) Motives to start reading nutrition information			
	<i>n</i>	No interest (%)	Never purchasing food (%)	No time (%)	<i>n</i>	Health problems (%)	Bigger letter size (%)	More time (%)
Total	375	44.4	15.2	9.1	314	37.6	6.7	4.5
Sex		$\chi^2=4.622^*$	$\chi^2=0.719^{ns}$	$\chi^2=1.062^{ns}$		$\chi^2=0.415^{ns}$	$\chi^2=2.058^{ns}$	$\chi^2=1.959^{ns}$
Male	197	49.2	13.7	7.6	167	35.9	4.8	6.0
Female	178	38.2	16.9	10.7	147	39.5	8.8	2.7
Age (years)		$\chi^2=17.663^{**}$	$\chi^2=11.524^*$	$\chi^2=1.715^{ns}$	<i>n</i>	$\chi^2=29.461^{***}$	$\chi^2=11.253^\dagger$	$\chi^2=0.600^{ns}$
15 - 24	58	56.9	13.8	10.3	48	45.8	6.3	4.2
25 - 34	64	51.6	9.4	10.9	57	56.1	0.0	3.5
35 - 44	61	50.8	4.9	9.8	57	43.9	3.5	3.5
45 - 54	64	39.1	20.3	7.8	51	39.2	7.8	5.9
55 - 64	57	22.8	21.1	10.5	45	28.9	15.6	4.4
65+	71	42.3	21.1	5.6	56	10.7	8.9	5.4
Years of education (duration)		$\chi^2=5.930^{ns}$	$\chi^2=21.733^{***}$	$\chi^2=4.938^{ns}$		$\chi^2=6.007^{ns}$	$\chi^2=5.831^{ns}$	$\chi^2=7.651^\dagger$
< 8 years	21	23.8	42.9	4.8	12	8.3	8.3	0.0
8 years	65	40.0	24.6	4.6	48	33.3	14.6	0.0
12 godina years	237	44.3	12.2	9.3	205	41.0	5.4	68.0
13 +	50	54.0	6.0	16.0	47	34.0	4.3	0.0
Household size (number)		$\chi^2=7.304^{ns}$	$\chi^2=7.952^{ns}$	$\chi^2=12.987^*$		$\chi^2=20.565^{***}$	$\chi^2=6.806^{ns}$	$\chi^2=3.549^{ns}$
1	60	35.0	25.0	1.7	45	20.0	13.3	0.0
2	87	41.4	14.9	11.5	74	24.3	9.5	5.4
3	73	43.8	8.2	2.7	66	53.0	6.1	3.0
4	75	41.3	17.3	16.0	60	46.7	3.3	6.7
5+	80	56.3	12.5	11.3	69	40.6	2.9	5.8
Monthly income per household		$\chi^2=7.219^{ns}$	$\chi^2=14.109^{**}$	$\chi^2=7.859^{ns}$		$\chi^2=7.155^{ns}$	$\chi^2=5.506^{ns}$	$\chi^2=7.196^{ns}$
Up to €270	70	31.4	24.3	4.3	52	23.1	9.6	1.9
Between €271 and €541	90	44.4	20.0	4.4	71	36.6	9.9	4.2
Between €542 and €811	70	47.1	8.6	12.9	64	40.6	7.8	3.1
Between €812 and €1,081	65	47.7	9.2	13.8	58	44.8	3.4	10.3
Between €1,082 and €1,487	30	53.3	3.3	10.0	29	44.8	3.4	6.9
Over €1,488	32	53.1	12.5	12.5	28	42.9	0.0	0.0
Employment status		$\chi^2=7.369^{ns}$	$\chi^2=20.006^\dagger$	$\chi^2=6.697^{ns}$		$\chi^2=14.590^{**}$	$\chi^2=20.539^\dagger$	$\chi^2=9.042^{ns}$
Employed	160	48.1	7.5	13.1	147	43.5	2.0	8.2
Unemployed	47	48.9	23.4	4.3	35	42.9	0.0	0.0
Housewife	20	35.0	40.0	5.0	11	18.2	9.1	0.0
Still undergoing education	29	55.2	17.2	3.4	23	52.2	8.7	0.0
Retired	114	35.1	17.5	7.0	94	23.4	16.0	2.1

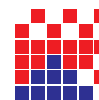


Table 3. (continued)

Marital status		$\chi^2=9.859^{**}$	$\chi^2=2.832^{ns}$	$\chi^2=2.409^{ns}$		$\chi^2=6.702^*$	$\chi^2=8.716^*$	$\chi^2=5.524^{ns}$
Single	100	57.0	11.0	8.0	87	43.7	3.4	2.3
Married	211	40.8	15.2	10.9	177	39.0	5.6	6.8
Widowed/ separated	63	34.9	20.6	4.8	50	22.0	16.0	0.0
Smoking		$\chi^2=8.638^{**}$	$\chi^2=2.085^{ns}$	$\chi^2=3.529^{ns}$		$\chi^2=1.583^{ns}$	$\chi^2=0.581^{ns}$	$\chi^2=0.781^{ns}$
Non-smoker	221	37.1	17.2	11.8	181	33.7	7.2	5.5
Smoker	138	52.9	11.6	5.8	120	40.8	5.0	3.3
Physical activity		$\chi^2=0.028^{ns}$	$\chi^2=2.847^{ns}$	$\chi^2=0.873^{ns}$		$\chi^2=0.055^{ns}$	$\chi^2=0.219^{ns}$	$\chi^2=2.095^{ns}$
No	205	44.4	18.0	7.8	165	37.0	6.1	6.1
Yes	170	43.5	11.8	10.6	149	38.3	7.4	2.7
BMI		$\chi^2=4.846^{ns}$	$\chi^2=16.125^\dagger$	$\chi^2=1.726^{ns}$		$\chi^2=5.147^{ns}$	$\chi^2=6.231^{ns}$	$\chi^2=1.081^{ns}$
Underweight	4	75.0	0.0	0	4	50.0	0.0	0.0
Normal weight	182	46.7	8.8	9.9	164	42.1	4.9	3.7
Overweight	137	40.9	19.7	10.2	109	36.7	7.3	5.5
Obese	43	32.6	30.2	4.7	29	20.7	17.2	6.9
Special diet (various health reasons)		$\chi^2=8.334^{**}$	$\chi^2=8.438^{**}$	$\chi^2=0.408^{ns}$		$\chi^2=5.446^*$	$\chi^2=0.276^{ns}$	$\chi^2=1.413^{ns}$
No	292	47.9	12.3	8.6	253	40.7	6.3	5.1
Yes	83	30.1	25.3	10.8	61	24.6	8.2	1.6
Special diet (weight problems)		$\chi^2=1.691^{ns}$	$\chi^2=0.755^{ns}$	$\chi^2=5.561^*$		$\chi^2=0.009^{ns}$	$\chi^2=3.488^{ns}$	$\chi^2=2.515^{ns}$
No	317	45.4	14.5	7.6	268	37.7	5.6	5.2
Yes	58	36.2	19.0	17.2	46	37.0	13.0	0.0

* 'label non-users' who answered that 'never' or 'do not know/wish to tell' why they did not read nutrition label, when purchasing packaged food during the last 12 months

χ^2 = Pearson Chi square analysis; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; † more of 20% expected frequency less than 5 (not significant)

ns = not significant

Table 4. Motives that would encourage "labelnon – users" to start read nutrition label when purchasing food

	<i>n</i>	%
Total	314	100
Health problems	118	37.6
Do not know	113	36.0
Other	22	7.0
Bigger letters size	21	6.7
More time	14	4.5
Interpretational aids	10	3.2
Somebody else read	9	2.9
Confidence	7	2.2
Missing	61	

* 'label non-users' who answered that 'never' or 'do not know/wish to tell' why they did not read nutrition label, when purchasing food during the last 12 months

Discussions

Results from this survey showed three dominant groups of reasons that are perceived as barriers towards reading nutrition

label among 'label non-users': no interest, lack of responsibility to purchase food and no time that were also significantly connected to socio-demographic and health variables (Table 2, Table 3). Male participants, younger (under 24 years), smokers and participants without special dietary pattern more frequently mentioned 'no interest', 'lack of purchasing food habits' was more pointed among participants aged 55 and over, those on a special diet and with the lowest education and social status, while subjects on a special diet due to weight problems more often mentioned 'no time' reason. The other reasons were "no habits" and "font size" (too small) and in general, knowledge about nutrition issues (lack of understanding nutrition information, no confidence in information, lack of positive perception in relation food and health). These results support theoretical framework that has been developed by the Grunert and Wills in 2007, where interests in nutrition issues, knowledge, demographic and label format are likely to play major impact on consumer's search, perception, understanding and use of nutrition label (Grunert and Wills, 2007). Apart from mentioned socio-demographic that were significantly connected with reasons in this paper, our findings also suggest that household, employment and marital status are significantly connected with main motives to start reading nutrition information (health problems, bigger letter size, more time).

It is interesting to notice, that age differences exist not only among 'label non-users' than also among 'label users' (Ranilović and Colić Barić, 2011). Expected, the reasons for reading and/or not reading nutrition label were different. Disappointing for us were finding, that problems with health would be probably the main 'motive' for younger 'label non-users' to start with nutrition label practice. However, that data bring some new light in relation with self-reported 'healthy' dietary practices (more fruits and vegetables, balance and variety, less fatty food), registered particular among younger subjects in Croatia (Ranilović et al., 2009). Furthermore, results in this survey have also shown a high level of present indifference towards motive that would encourage "label non-users" to start read nutrition label (36% answers were "do not know" and 7% were "other"). Although, bigger letter size and interpretational aid are found to be the motives that would probably stimulate 'label non-users' to use and better understanding nutrition information. Similarly, many quantitative and qualitative studies in USA and Europe found that as general consumer's attitude (Paterson et al., 2001, European Food International Council, 2004; European Food International Council, 2006; Rothman et al., 2006;). Special diet is important factor of reading nutrition information in this study that has been also evident in previous literature data (Kreuter et al., 1997; National Institute of Nutrition, 1999; Gracia et al., 2007). Overall data underline, the needful for nutritional education not only towards healthy diet, then also about nutrition label use. However, getting consumer to change eating patterns by using nutrition label at the point of purchase is no trivial task. Consequently, many studies address nutrition knowledge as important determinant of label understanding and use, but recent practice of American dietetics professionals have shown that using goal-setting as a strategy in dietary interventions have been more successful than knowledge-based programs for dietary behavior change (Cullen et al., 2001).

Conclusions

To the best of our knowledge, the results of this study conducted on purpose to be accounted with recently published, are the first that contributed to deeper understanding of nutrition label habits among Croatian subjects. Comparing label users (Ranilović and Colić Barić, 2011) and non-users practices that has been showed in this paper, a positive attitude towards healthy eating is found to be the key difference between them, whether need for bigger letter size and interpretational aid would benefit for all in nutrition label usage. Perceived barriers lack of interests and nutrition reading habits among healthy 'label non-users', pose a serious challenge in dietary interventions taking into account age, gender, educational and social level. It would be worthwhile to examine the effectiveness of goal-setting procedure in nutrition education programs that target various sub-groups of consumer.

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